

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO.

WASTE DISCHARGE REQUIREMENTS
FOR
JERRY G. BRASSFIELD
BRASSFIELD ESTATE WINERY
LAKE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. Jerry G. Brassfield dba Brassfield Estate Winery (hereafter Discharger) submitted a Report of Waste Discharge (RWD) dated 22 September 2004 for updating Waste Discharge Requirements (WDRs) for the Brassfield Estate Winery. Supplemental information was received on 14 January and 10 June 2005.
2. The Discharger's winery and tasting facility is at 10915 High Valley Road in High Valley, Lake County (Assessors Parcel No. 6-004-11) in Section 23, T14N, R8W, MDB&M. The location of the winery is shown on Attachment A, which is attached hereto and made part of this Order by reference.
3. WDRs Order No. R5-2003-0097, adopted by the Regional Board on 6 June 2003, prescribes requirements for the Discharger's wastewater treatment system. This Order is not adequate because the Discharger is increasing its wine production and wastewater flows, and changing treatment methods from a Rotating Biological Contactor (RBC) with land disposal to an aerated pond system with land disposal.

BACKGROUND

4. The Discharger has developed a 4.11 acre wine tasting and passive recreational area within 1,600 acres used for grape growing and homesteading operations. The winery facility consists of a 6,000 square foot roofed warehouse and a 6,000 square foot slab for the processing operations.
5. Activities at the winery facility include receiving, crushing and pressing of grapes; fermentation; processing into finished wines; and distribution.
6. The Discharger will process approximately 80,000 cases of wine and produce approximately 762,238 gallons of winery wastewater annually. This estimate is based on standard 9-liter cases and assumes that one gallon of processed wine will produce 4 gallons of wastewater.
7. During wine production, various chemicals can be used as either an additive, a fining agent, or as a cleaner/sanitizer. These compounds may include the following:

Wine Additive

Wine Fining Agent

Cleaner/Sanitizer

<u>Wine Additive</u>	<u>Wine Fining Agent</u>	<u>Cleaner/Sanitizer</u>
Citric Acid	Bentonite	Caustic Soda
Fumaric Acid	Diatomaceous Earth	Sodium Hypochlorite
Malic Acid	Carbon	Chlorinated Trisodium Phosphate
Tartaric Acid	Copper Sulfate	Caustic/Wetting Agent
Phosphate	Nylon Polymer	
Sulfur Dioxide	Potassium Bitartrate	
Diammonium Phosphate		
Potassium Metabisulfite		

8. Monthly influent monitoring data from January 2004 to December 2004 shows pH levels ranging from 5.05 to 7.5 and biochemical oxygen demand (BOD) concentrations up to 15,000 mg/L. Because there are no other site-specific influent concentrations available, typical influent winery wastewater data are presented below. Constituent concentrations are the highest during the crush season, and are typically in the following ranges:

<u>Compound</u>	<u>Units</u>	<u>Typical Winery Concentration Range¹</u>
pH	pH units	2.5 – 9.5
Dissolved Oxygen	mg/L	0.5 – 8.5
Biochemical Oxygen Demand (BOD ₅) ²	mg/L	500 – 12,000
Chemical Oxygen Demand (COD)	mg/L	800 – 15,000
Grease	mg/L	5 – 30
Settleable Solids	mg/L	25 – 100
Nonfilterable Residue	mg/L	40 – 800
Volatile Suspended Solids	mg/L	150 – 700
Total Dissolved Solids (TDS)	mg/L	80 – 2,900
Nitrogen	mg/L	1 – 40
Nitrate (as Nitrate)	mg/L	0.5 – 4.8
Phosphorous	mg/L	1 – 10
Sodium	mg/L	35 – 200
Alkalinity (CaCO ₃)	mg/L	40 – 730
Chloride	mg/L	3 – 250
Sulfate	mg/L	10 - 75

¹ Typical chemical analyses of winery wastewater from Summit Engineering, Process Wastewater Management System, Design Criteria and Calculations, 5 June 1998.

² Five-day, 20° Celsius Biochemical Oxygen Demand.

9. Effluent concentrations of winery wastewater treated using the Rotating Biological Contactor (RBC) treatment unit (used at the facility between 2003 and 2005), based on monthly monitoring reports from January 2004 to December 2004, are as follows:

<u>Compound</u>	<u>Units</u>	<u>Non-Crush Concentration Range</u>	<u>Crush Concentration Range</u>
pH	pH units	6.88 – 8.18	7.11 - 7.9
Specific Conductivity	μ mhos/cm	361 - 1419	1,547 – 3,070
Dissolved Oxygen	mg/L	0.06 – 4.09	0.14 - 0.25
Biochemical Oxygen Demand (BOD ₅) ¹	mg/L	<0.5 – 1,900	43 – 1,900
Total Dissolved Solids (TDS)	mg/L	180 – 2,800	1,300 – 2,900
Total Kjeldahl Nitrogen (TKN)	mg/L	<1.0 – 190	23 – 190
Nitrate as Nitrogen	mg/L	<0.2 – 28	<0.2 – 0.51
Sulfate	mg/L	<2.5 – 31	3.8 – 22
Volatile Dissolved Solids	mg/L	37 – 660	320 - 850

¹ Five-day, 20° Celsius Biochemical Oxygen Demand.

WASTEWATER SYSTEM

10. By October 2005, the Discharger will convert from using the RBC treatment process to using an aerated pond treatment process. The following findings describe the new treatment system.
11. Wastewater generated from winery processing activities (process/equipment cleaning, barrel washing and washdown operations) is collected in a series of floor drains both at the crush pad and inside the winery building. The wastewater then gravity flows to an influent pump station where it is pumped through a force main equipped with a flow meter to a 3,000 gallon selector tank for sludge bulking control. A chemical feed pump used for the injection of nutrients to control pH is also piped into the selector tank. From this tank, the wastewater will flow into either Aeration Pond No. 1 or No. 2. Each of the ponds is equipped with mechanical aeration devices. Flow between these two ponds is controlled via a telescoping valve in a manhole. From the ponds, the wastewater flows through a clarifier and into two 2,500 gallon aboveground temporary storage tanks prior to being discharged to an eight acre land application area. Some of the activated sludge collected in the clarifier will be returned to the aeration ponds. A schematic of the wastewater system is shown as Attachment B. A site plan is shown as Attachment C and detailed in Attachments C-1 and C-2. Attachments B, C, C-1, and C-2 are attached hereto and made part of this Order by reference.
12. The two 2,500 gallon aboveground storage tanks are located northwest of the aeration ponds and are used for the temporary storage of wastewater from the aeration ponds. Supplemental irrigation water is added to the tanks prior to discharge to the land application area.
13. Each of the two aeration ponds will be constructed with two individual layers of 40-mil geocomposite clay liner (GCL) with a leachate collection system between the two GCL layers for leak detection purposes. A 4-inch thick concrete layer in each of the ponds will overlie the liner and act as a wear surface to protect the liner from maintenance operations and possible scour from

the mechanical aerators. The ponds have a combined surface area totaling 5,200 square feet and a volume with 2-feet of freeboard of approximately 99,000 gallons.

14. The RWD states that the activated sludge from the clarifier will either be directly pumped to the selector tank and then to the aeration ponds, or into two sludge drying beds. These beds will be constructed with a 40-mil high density polyethylene (HDPE) liner with a drainpipe connected to the aeration ponds. The beds will be covered during the wet weather months with waterproof tarps to prevent storm water from entering the beds. During the winter months, the sludge will be transported offsite via a licensed waste hauler for proper disposal.
15. The Discharger has submitted a Construction Quality Assurance (CQA) Plan to assure that construction practices for the aeration ponds are of high quality to provide maximum protection of water quality. This Order requires the Discharger to submit a Certification Report signed by an appropriately registered professional following completion of the construction phase of the project.
16. The Discharger states that this aerated pond system should be completed in October 2005. The RBC treatment unit will continue to be used until the Discharger has completed the wastewater treatment system as described in this Order.
17. The RWD states that the average monthly flow anticipated during the crush period (September and October) is approximately 6,000 gallons per day (gpd). The average monthly flows during the remainder of the year are anticipated at 1,830 gpd.
18. The Discharger's water-balance for the wastewater treatment, storage, and disposal system shows that the wastewater ponds have adequate capacity to accommodate allowable wastewater flows and design seasonal precipitation for a 100-year return period.
19. The majority of the processing is conducted under covered roofs to protect against commingling of storm water runoff with process wastewater. However, the grape crush area is on an uncovered concrete pad equipped with a drain containing a three-way control valve connected to the wastewater influent and the storm water discharge piping. This valve is secured via a padlock and chain to direct the flow of water and ensure that during crush operations all wastewater is discharged into the treatment system. The Discharger states that only senior management personnel are provided with a security key for access and control of the valve. The storm water collection system consists of an oil/water separator for treatment prior to discharge to an intermittent stream.

LAND APPLICATION SYSTEM

20. The Discharger proposes to dispose of winery effluent by applying it to eight acres of vegetated land using an automated spray irrigation system. The RWD states that in the event the foliage is not controlled by the deer population on-site that a tractor will be utilized as necessary, and the grasses will either be composted onsite or transported offsite.

21. Tailwater controls consist of an earthen berm down slope of the land application area that is used to prevent waste water from leaving the land application area. In order to prevent the potential discharge of storm water mixed with wastewater, this Order prohibits irrigation with wastewater 24 hours before, during, or 24 hours after a rain event, or when soils are saturated.
22. The following table presents anticipated loading rates to the eight acre land application area for BOD, total nitrogen, and total dissolved solids (TDS), including volatile dissolved solids (VDS), and inorganic dissolved solids (IDS). With the exception of BOD, these loading rates were calculated based on annual wastewater flows of 762,238 gallons, and average effluent concentrations from the RBC treatment unit from January 2004 to April 2005. The BOD value used in the calculation was based on modeling data.

<u>Compound</u>	<u>Concentration (mg/L)</u>	<u>Loading Rate (lbs/acre/year)</u>	<u>Loading Rate (lbs/acre/month)</u>	<u>Loading Rate (lbs/acre/day)</u>
BOD	400	318	26	0.9
TDS	1,279	1,016	85	2.8
VDS	213	169	14	0.5
IDS	1,066	847	71	2.3
Total Nitrogen	42	33	3	0.1

23. These loading rate calculations show that the nitrogen in the wastewater is less than the grass crop demand on the land application area based on a nitrogen demand of 200 lbs/acre/year for native grasses. Given the application method and loading, groundwater should not be degraded by nitrogen. In addition, these calculations show application of the winery wastewater to the eight acre land application area should not cause an increase in the salt (measured as specific conductivity, TDS, or chloride concentrations) in the underlying groundwater. The “total dissolved solids” component of the wastewater is composed of both volatile dissolved solids (VDS) and inorganic dissolved solids (IDS). The volatile dissolved solids are broken down by soil microorganisms in a well managed land application system and do not reach groundwater. Because plants can take up to 2,000 pounds of salt/acre/year, the loading rate for TDS should not degrade the underlying groundwater.
24. The following table presents estimated average hydraulic loading rates for the eight acre land application area if wastewater was land applied on a daily basis. However, because this Order prohibits irrigation of wastewater 24 hours before, during, or 24 hours after a rain event, or when soils are saturated, these calculations may not represent actual applied daily rates.

Annual Flow (gallons)	762,238
Acreage Applied (acres)	8
Rate(gallons/acre/year)	95,280
Rate (gallons/acre/month)	7,940
Rate (gallons/acre/day)	265

SOLID WASTE

25. Solid/semi-solid wastes such as pomace (skins, seeds, pulp, stems, etc. resulting from the grape crush), and wine settlement and filter cake media (bentonite and diatomaceous earth) are also generated by the processing operations. Such solid/semi-solid wastes are segregated from the process wastewater stream for separate handling and disposal. The pomace is spread in the vineyards as compost and/or tilled into the vineyards as a soil amendment. The bentonite and diatomaceous earth are removed from the facility by a licensed waste hauler. According to the RWD, storage of solid/semi-solid wastes will only occur on relatively impervious surfaces with leachate collection capabilities. Collected leachate will be sent to the process wastewater treatment system for further handling and treatment prior to disposal.
26. Seeds, stems, skins, and pomace collected from crushing equipment and from floor drain screens will be placed into plastic tubs and then spread out within the 80 acres of vineyard area prior to the beginning of the rainy season. Any composted waste material would be disced into the soil during spring soil preparation.

SITE SPECIFIC CONDITIONS

27. The site is relatively flat and is near the western end of High Valley which trends east to west. High Valley is a few miles north of Clear Lake.
28. Surficial soils (upper 12-inches) consist of the Wolfcreek loam which is characterized as a stratified brown clay loam and very sandy clay loam. These soils typically have moderately slow permeability. Based on a Soil Conservation Survey report, permeability values for the Wolfcreek soils range from 0.2 to 0.6 inches/hour at 20 to 25 inches depth.
29. The upper 20 feet of subsurface geology consists primarily of highly plastic, very stiff to hard clay of lacustrine origin.
30. The soils underlying the aeration ponds generally consist of dark organic material at the surface underlain by silt with sands to approximately 1.5 feet bgs, silt with some clay and angular particles to approximately 5 feet bgs, and sandy silt with some 1 to 2-inch diameter cobbles to approximately 7 feet bgs. Water was encountered at approximately 8-feet bgs. The depth to underlying bedrock in the area is unknown since the soil pits excavated to approximately 9-feet bgs did not reveal bedrock.
31. The facility is within the Lucerne Hydrologic Area (No. 513.53), as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.
32. The 100 year return rainfall for the area is approximately 62 inches and ranges from 0.3 to 11.8 inches. The precipitation data is based on information obtained from the Clearlake Highlands Station.
33. Evapotranspiration rates for the High Valley area range from 0.9 to 8 inches per month with the highest rates occurring in July.

34. Sanitary/domestic wastewater is collected separately from the process winery wastewater in an on-site sewage disposal system. This system is regulated by Lake County Environmental Health Department.

GROUNDWATER CONDITIONS

35. The Discharger installed three two-inch diameter groundwater monitoring wells in 2002 and a fourth well in 2003. Hydrologic data collected from these wells show that the depth to water ranges from approximately 3 to 11 feet below ground surface (bgs) and groundwater flow is toward the southeast at a magnitude of 0.013 ft/ft. The monitoring well locations are shown in Attachment C-1.
36. Quarterly groundwater samples collected from monitoring wells between first quarter 2003 and second quarter 2005 have been analyzed for a number of constituents. Relevant constituents are presented in the table below.

<u>Constituents</u>	<u>Units</u>	<u>MW-1</u> (upgradient)	<u>MW-2</u> (downgradient)	<u>MW-3</u> (downgradient)	<u>MW-4</u> (background)
pH	pH units	6.28 – 7.15	6.42 – 7.1	6.43 – 7.24	6.21 – 6.44
Specific Conductivity	μmhos/cm	204 – 609	740 – 1280	595 – 875	142 – 458
Total Dissolved Solids	mg/L	140 - 280	400 – 710	310 – 440	100 – 220
Chloride	mg/L	7 - 21	59 – 190	3 – 49	10 – 49
Sulfate	mg/L	9 – 35	35 - 120	33 – 48	14 – 23
Nitrate as Nitrogen	mg/L	<0.2	<1 - 47	12 – 19	<0.2 – 6.2
Total Kjeldahl Nitrogen	mg/L	<1.0	<1.0 – 15	<1.0 – 5.6	<1.0 – 5.5
Sodium	mg/L	18 - 59	48 – 120	38 – 47	14 – 39

37. Nitrate as nitrogen has consistently been reported above the maximum contaminant level (MCL) of 10 mg/L in quarterly groundwater samples collected from MW-3 since the first quarter 2003. Nitrate as nitrogen has also been reported above the MCL in samples collected from MW-2. In addition, these nitrate as nitrogen concentrations in MW-2 and MW-3 exceed background concentrations reported in MW-4 located upgradient of MW-2 and MW-3.
38. Total Dissolved Solids (TDS) concentrations have exceed the Agricultural Water Quality Goal of 450 mg/L in several samples collected from MW-2 and MW-3 since the first quarter 2003. In addition, these TDS concentrations in MW-2 and MW-3 exceed background concentrations reported in MW-4 located upgradient of MW-2 and MW-3.
39. The RWD states that the sources of the higher nitrate and TDS concentrations in MW-2 and MW-3 may be associated with previous ranching/cattle operations, current fertilizer applications in the area, and the domestic leachfield located near MW-1. The RWD states that removal of the RBC treatment unit and replacement of the pump station should prevent further groundwater degradation.

40. A Salinity Reduction Workplan submitted in August 2004 indicated that the most obvious method of reducing salinity was to reduce its use in the winemaking process. In addition, the report stated that if the BOD concentration were lowered, then the VDS levels would also be reduced. Finally, the report stated that improving the landscape within the land application area would increase the amount of nitrogen taken up by the crops.
41. It is noted that the above discussion relates to the monitoring wells installed to measure the effects of the RBC treated wastewater and the discharge to the landscaped areas. This Order requires that the discharge be ceased by 1 November 2005. As the new wastewater treatment and disposal system is in a different location, this Order also requires that new groundwater monitoring wells be installed. Because the new system provides better treatment, the Discharger should be able to comply with the Groundwater Limitations of this Order.
42. Primary water for processing and domestic purposes is derived from a spring southwest of the facility and at an elevation approximately 150 feet higher than the facility. The water from the spring gravity flows to the winery. In addition to this water supply, two 5,000 gallon storage tanks located on the hillside south of the winery site are connected to various hydrants and to the sprinkler system inside the winery building used for fire protection. A groundwater sample was collected from the spring in February 2002 and analyzed for the following constituents. Results are presented in the table below.

<u>Constituents</u>	<u>Units</u>	<u>Water Supply</u>
pH	pH units	7.0
Specific Conductivity	μ mhos/cm	480
Dissolved Oxygen	mg/L	5.6
TDS	mg/L	240
Hardness, Total	mg/L	203
Iron	mg/L	<0.10
Manganese	mg/L	0.027
Sodium	mg/L	22
Arsenic	mg/L	<0.0020
Boron	mg/L	<0.050
Total Coliform	MPN/100 mL	<1.0
Fecal Coliform	MPN/100 mL	<1.0

BASIN PLAN, BENEFICIAL USES, AND REGULATORY CONSIDERATIONS

43. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board. Pursuant to §13263(a) of the California Water Code (CWC), waste discharge requirements must implement the Basin Plan.

44. Surface water drainage in the area is to Schindler Creek, which is tributary to Clear Lake.
45. The beneficial uses of Clear Lake, as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; industrial service supply; water contact recreation; noncontact water recreation; warm freshwater habitat, cold freshwater habitat; spawning, reproduction, and/or early development; and wildlife habitat.
46. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
47. State Water Resources Control Board (State Board) Resolution No. 68-16 requires that the Board, in regulating the discharge of waste, must maintain high quality waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies (e.g., quality that exceeds water quality objectives).
48. Anti-degradation has been considered pursuant to State Board Resolution No. 68-16 and it has been determined that this discharge of waste should not degrade surface water or groundwater quality. The waste will be treated to remove BOD and total suspended solids, and will be applied to land at agronomic rates. The Discharger is required to implement its Salinity Reduction Plan. This Order establishes effluent limitations that are protective of the beneficial uses of the underlying groundwater, and requires the sampling of groundwater monitoring wells to assure that the discharge of waste is not impacting the underlying groundwater. Based on the result of the scheduled tasks, this Order may be reopened to reconsider effluent limitations and other requirements to comply with Resolution 68-16.
49. Section 13267(b) of California Water Code provides that: *"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."*

The technical reports required by this Order and the attached "Monitoring and Reporting Program No. ____" are necessary to assure compliance with these waste discharge requirements.

50. California Department of Water Resources standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), is described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to CWC section 13801, apply to all monitoring wells.

51. Federal regulations for storm water discharges were promulgated by the U.S. Environmental Protection Agency on 16 November 1990 (40 CFR Parts 122, 123, and 124). The State Board adopted Order No. 97-03-DWQ (General Permit No. CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The Discharger has obtained coverage under General Permit No. CAS000001.
52. This discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Section 20005, et seq., (hereafter Title 27). The exemption pursuant to Section 20090(b), is based on the following:
 - a. The Board is issuing waste discharge requirements,
 - b. The discharge complies with the Basin Plan, and
 - c. The wastewater does not need to be managed according to Title 22 CCR, Division 4.5, and Chapter 11, as a hazardous waste.
53. The action to update WDRs for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), in accordance Title 14, California Code of Regulations (CCR), Section 15301.
54. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

PUBLIC NOTICE

55. All the above and the supplemental information and details in the attached Information Sheet, incorporated by reference herein, were considered in establishing the following conditions of discharge.
56. The Discharger and interested agencies and persons were notified of the intent to prescribe WDRs for this discharge and provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
57. In a public meeting, all comments pertaining to the discharge were heard and considered.

IT IS HEREBY ORDERED that Order No. R5-2003-0097 is rescinded and, pursuant to Sections 13263 and 13267 of the California Water Code, Jerry G. Brassfield, his agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions:

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Operation of a distillery at the facility is prohibited.
3. Bypass or overflow of untreated or partially treated waste is prohibited.
4. Discharge of waste classified as 'hazardous,' defined in Section 20164 of Title 27, CCR, or 'designated,' as defined in Section 13173 of the California Water Code, is prohibited.
5. The discharge of winery wastewater to the storm water collection area or the domestic wastewater system is prohibited.
6. The discharge of domestic waste to the process wastewater treatment system is prohibited.
7. As of **1 November 2005**, the discharge of wastewater to other than the land application area shown on Attachment C-2 is prohibited.
8. Use of the RBC treatment system and landscape disposal area is prohibited after **1 November 2005**.

B. Discharge Specifications:

1. The monthly average discharge into the wastewater pond system shall not exceed 1,830 gpd. Higher monthly average flows are allowed during the crush season (generally mid-September through mid-November), as long as the total yearly flow does not exceed 762,238 gallons.
2. Disposal of effluent shall be confined to the wastewater ponds and the land application area.
3. Neither the treatment nor the discharge shall cause a condition of nuisance or pollution as defined by the CWC, §13050.
4. The discharge shall not cause the degradation of any water supply.
5. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.
6. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the property owned by the Discharger.

7. As a means of discerning compliance with Discharge Specification No. 6, the dissolved oxygen content in the upper zone (one foot) of the wastewater ponds shall not be less than 1.0 mg/L.
8. Public contact with wastewater shall be precluded or controlled through such means as fences and signs, or acceptable alternatives.
9. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.
10. The wastewater treatment system and land application area(s) shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
11. No physical connection shall exist between wastewater piping and any domestic water supply or other domestic/industrial supply well without an air gap or approved reduced pressure device.
12. The wastewater treatment, storage, and land application system shall have sufficient capacity to accommodate wastewater flow and seasonal precipitation. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
13. The freeboard in the aeration ponds shall never be less than two feet as measured vertically from the water surface to the lowest point of overflow.
14. By **1 November** of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications No. 12 and No. 13.
15. The ponds shall be managed to prevent the breeding of mosquitoes. In particular,
 - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the waste surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, and/or herbicides.
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
16. The August 2004 Salinity Reduction Workplan shall be immediately implemented.

C. Effluent Limits:

1. Hydraulic loading of wastewater and supplemental fresh water to the land application area shall be at rates designed to minimize percolation below the evaporative zone, except as

needed to promote surface soil chemistry that is consistent with sustainable agricultural land uses.

2. Wastewater discharged from the aerated ponds to the eight acre land application area shall not exceed the following monthly average effluent limits, or any lower limits necessary to comply with the Groundwater Limitations:

<u>Constituent</u>	<u>Units</u>	<u>Concentration</u>
BOD	mg/L	425
Total Dissolved Solids	mg/L	1,300
Total Nitrogen	mg/L	45

3. The wastewater discharged to the land application area shall not have a pH of less than 6.5 or greater than 8.4.

D. Land Application Area Requirements:

1. The discharge shall be distributed uniformly on adequate acreage in compliance with the Discharge Specifications and Effluent Limitations.
2. Crops (or grasses) shall be grown on the land application area. Crops shall be selected based on nutrient uptake capacity, tolerance to high soil moisture conditions, and consumptive use of water and irrigation requirements. Cropping activities shall be sufficient to take up all the nitrogen applied. Grasses shall be harvested and removed from the application area.
3. Discharge of process wastewater, including runoff, spray or droplets from the irrigation system, shall not occur outside the boundaries of the land application area.
4. Hydraulic loading of process wastewater and irrigation water shall be at reasonable agronomic rates designed to minimize the percolation of process wastewater and irrigation water below the root zone (i.e., deep percolation).
5. Wastewater conveyance lines shall be clearly marked as such. Reclaimed process wastewater controllers, valves, etc. shall be affixed with reclaimed water warning signs, and these and quick couplers and sprinkler heads shall be of a type, or secured in such a manner, that permits operation by authorized personnel only.
6. Irrigation systems shall be labeled as containing reclaimed wastewater. If wastewater and irrigation water utilize the same pipeline, then backflow prevention devices shall be installed to protect the potable water supply.
7. Public contact with wastewater shall be precluded through such means as fences, signs, and irrigation management practices. Signs with proper wording of sufficient size shall be placed at areas of access and around the perimeter of the land application area(s) to alert the public of the use of wastewater.

8. The land application area shall be managed to prevent breeding of mosquitoes.
9. A 50-foot buffer zone shall be maintained between any watercourse and the wetted area produced during irrigation used for process wastewater effluent disposal.
10. A 100-foot buffer zone shall be maintained between any spring, domestic well or irrigation well and the wetted area produced during irrigation used for process wastewater effluent disposal.
11. Discharges to land application area shall be managed to minimize both erosion and runoff from the irrigated area.
12. The resulting effect of the wastewater discharge on the soil pH shall not exceed the buffering capacity of the soil profile.

E. Solids/Sludge Disposal Requirements:

1. Collected screenings, sludge, and other solids removed from winery wastewater shall be disposed of in a manner that is consistent with Title 27, Division 2, Subdivision 1 of the CCR and approved by the Executive Officer.
2. Winery sludge and other solids shall be removed from the process equipment, sumps, etc. as needed to ensure optimal operation and adequate hydraulic capacity. Winery solids drying operations, if any, shall be designed and operated to prevent leachate generation.
3. Any proposed change in solids use or disposal practice from a previously approved practice shall be reported to the Executive Officer at least 90 days in advance of the change.

F. Groundwater Limitations:

Release of waste constituents from any system component associated with the wastewater treatment facility shall not cause groundwater under and beyond that system component (as determined by an approved well monitoring network) to contain any constituents in concentrations greater than ambient background conditions, and shall not cause or contribute to the violation of any Basin Plan narrative or numeric water quality objective.

G. Provisions:

1. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code §6735, 7835, and 7835.1. As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

2. All of the following reports shall be submitted pursuant to §13267 of the CWC, and shall be prepared by a California registered professional as described in Provision G.1.
 - a. By **30 November 2005**, the Discharger shall submit a *Construction Report* certifying that the new wastewater system has been constructed, inspected, and tested in accordance with the CQA plan and this Order. The report shall show the treatment plant and disposal area layout, and shall clearly document any significant deviation from the system design as presented in the RWD. The report shall also certify that the existing RBC has been decommissioned.
 - b. By **1 January 2006**, the Discharger shall submit and implement an *Operation and Management Plan* (O&M Plan) that addresses operation of the wastewater treatment and disposal facility. At a minimum, the O&M Plan will describe (a) the daily operation and maintenance of the treatment system, (b) the practices used to treat the wastewater within limits specified in this Order, (c) the locations of the land application areas, and procedures used for the disposal of wastewater to these areas to prevent excessive BOD, nitrogen, and salt over the loading limits specified in this Order, (d) the locations of flow and effluent sampling points, (e) quality control sampling procedures necessary to obtain representative samples, (f) practices used to maintain the land application area(s), and (g) the locations of the solid waste disposal areas, methods of disposal, and the daily practices associated with the disposal of the solid waste. A copy of the O&M Plan shall be kept at the facility for reference by operating personnel and they shall be familiar with its contents.
 - c. By **1 February 2006**, the Discharger shall submit a *Groundwater Monitoring Well Installation Workplan*. The workplan shall describe the proposed installation of groundwater monitoring wells around the wastewater ponds and the disposal area(s) to adequately characterize the groundwater quality upgradient and downgradient of the wastewater ponds and disposal area(s). Every monitoring well shall be constructed to yield representative samples from the uppermost layer of the uppermost aquifer and to comply with applicable well standards. The workplan shall be consistent with, and include the items listed in, the first section of Attachment D, which is attached hereto and made part of this Order by reference.
 - d. By **1 July 2006**, the Discharger shall submit a *Groundwater Monitoring Well Installation Report* that describes the installation of groundwater monitoring wells and contains the items found in the second section of Attachment D.
 - e. By **1 July 2006**, the Discharger shall submit a *Salinity Reduction Report of Results* that quantifies the mass and concentration of salt constituents discharged in the effluent. The report shall compare concentrations both before and after the August 2004 Salinity Reduction Workplan was implemented. If measurable difference has not been achieved, the report shall discuss the reasons why there has been no decrease and shall propose additional salinity reduction measures.

- f. The Discharger shall submit the following technical reports by the required dates to address the groundwater degradation described in Finding Nos. 39 and 40:
 - a. By **1 February 2007**, an *Engineering Feasibility Study* (EFS) that assesses the feasibility and effectiveness of various remedial options to return impacted groundwater to background levels as measured in the background monitoring well.
 - b. By **1 July 2007**, a *Corrective Action Plan* (CAP) to implement the best remedy selected from the EFS to return impacted groundwater to background levels as measured in background monitoring well(s). The CAP shall be implemented no later than **1 September 2007**.
 - g. By **1 December 2008**, the Discharger shall submit a *Background Groundwater Quality Study Report* for the new wells installed around the aerated ponds and the disposal field. For each groundwater monitoring parameter/constituent identified in the Monitoring and Reporting Program, the report shall present a summary of monitoring data, a calculation of the concentration in background monitoring well(s), and a comparison of background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27, Section 20415(e)(10), and shall be based on data from at least eight consecutive quarterly (or more frequent) groundwater monitoring events.
3. The Discharger shall comply with the Monitoring and Reporting Program No. _____, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
4. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
5. In the event of any change in control or ownership of the facility or land disposal areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
6. The Discharger shall submit to the Regional Board on or before each compliance report due date the specified document, or if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is reported, then

the Discharger shall state the reasons for noncompliance and shall provide a schedule to come into compliance.

7. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to §313 of the "Emergency Planning and Community Right to Know Act of 1986."
8. The Discharger shall report promptly to the Board any material change or proposed change in the character, location, or volume of the discharge.
9. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.
10. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board orders, the imposition of civil liability, revision or rescission of this Order, or referral to the Attorney General.
11. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
12. The Regional Board will review this Order periodically and will revise requirements when necessary.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

THOMAS R. PINKOS, Executive Officer